A NEW RECORD OF *CNEPHIA UMBRATORUM* (TONNOIR) (DIPTERA: SIMULIIDAE) AND *APSECTROTANYPUS PALLIPES* (FREEMAN) COMB. N. (DIPTERA: CHIRONOMIDAE) FROM THE OTWAY RANGES, VICTORIA

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Abstract

The simuliid, *Cnephia umbratorum* (Tonnoir) and chironomid, *Anatopynia pallipes* Freeman are recorded for the first time from the northern Otway Ranges, Victoria. *A. pallipes* is here assigned to the genus *Apsectrotanypus* Fittkau, on the basis of previously unknown, and here described, larval and pupal morphology.

Introduction

Larvae of *Cnephia umbratorum* (Tonnoir) (Diptera; Simuliidae) and *Anatopynia pallipes* Freeman (Diptera; Chironomidae) were collected from two different streams approximately 5 km south-east of Forrest on 21 September 1986. These streams form part of the headwaters of the Barwon River, East Branch, in the Otway Ranges of southern Victoria. The larvae collected were reared in a laboratory stream (Horne and Bennison 1987) in Melbourne so that identifications based on larval, pupal and adult stages could be made. That is, field collected larvae were link-bred, providing pupal exuviae and adult specimens for examination.

The generic placement of *A. pallipes* (Freeman) within the tribe Macropelopiini (sub-family Tanypodinae) has until now remained in doubt (Cranston and Martin, in press and Roback 1982a). Based on larval, pupal and adult female characteristics *pallipes* is assigned to the genus, *Aspectrotanypus* Fittkau. The pupal terminology follows that of Fittkau (1962) while all morphological abbreviations follow that of Roback (1982a).

Description and Biology

Cnephia umbratorum (Tonnoir)

Simuliid larvae generally inhabit fast-flowing streams or riffle areas of slower moving water bodies. The larvae of most species are filter feeders (Burton 1973) attaching to hard surfaces and using cephalic fans to collect particles from the water column. Some species have developed a grazing behaviour to

supplement or replace filter-feeding and in these species the cephalic fans and mandibles may be further modified (Chance 1970). *C. umbratorum* (Tonnoir) was found attached to submerged plants in a slow moving stream with sandy substrate. The shape of the head and mouthparts of *C. umbratorum* are similar to those of *Twinnia biclavata* Shewell, a non-filter feeding species (Chance 1970), suggesting that grazing may be important in the slow flow habitats of *C. umbratorum*. Both the morphology and habitat of this species are consistent with grazing, rather than filtering, being the main feeding method.

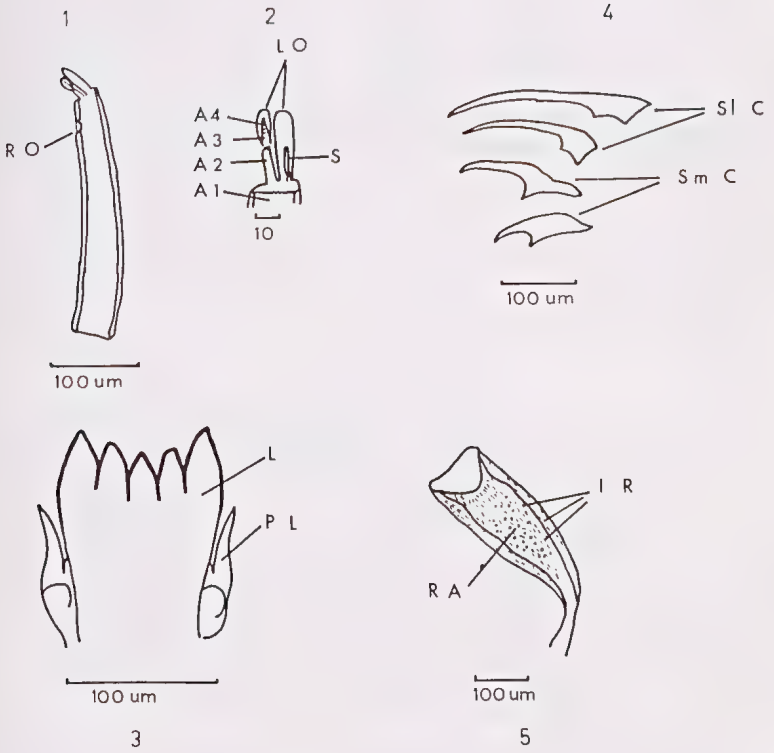
The larvae of *C. umbratorum* were described from four specimens found in "gently flowing water" near Narbethong, Victoria (Mackerras and Mackerras 1952). Further records of the species were added (Mackerras and Mackerras 1955), with all localities being in the same mountainous area to the north-east of Melbourne. There are also adult specimens in the Museum of Victoria collected from the Grampians. Distinctive characters of the larvae of this species are: (i) the head capsule, covered with short stiff setae, tapers markedly anteriorly when compared with other Australian simuliids, (ii) small antennae (iii) gill spot with filaments in a figure-8 shape. Pupal gills delicate and many-branched.

Apsectrotanypus pallipes (Freeman) **comb. n.**

Anatopynia pallipes Freeman, 1961. *Aust. J. Zool.* 9 (4):622 ?*pallipes*. (Cranston and Martin, in press)

Material examined: VICTORIA: 1 female reared from larva, Barwon River (East branch) approximately 100 m upstream of Lake Elizabeth, 1 female reared from larva, approximately 500 m downstream of Lake Elizabeth, 21. ix. 1986. V. Pettigrove, P. Horne and G. Bennison. Both specimens are deposited in the Australian National Insect Collection, Canberra.

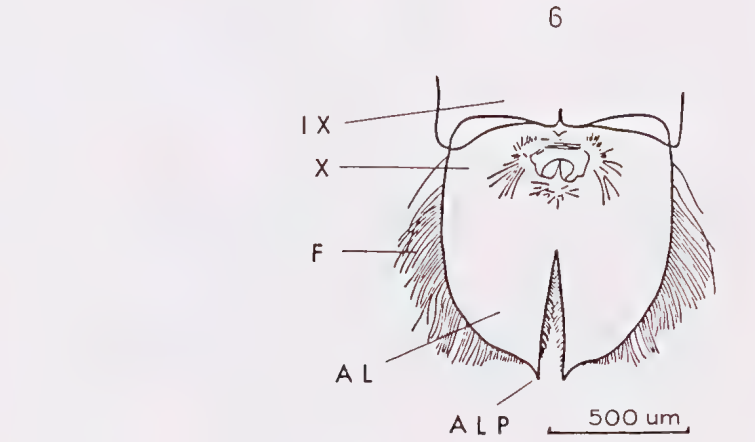
Larva: Head colour yellow; antennae (Figs 1+2), A_1 261 um; A_{2-4} 41 um; AR 6.4; CS.A_1 0.85 from base; A_2 22 umL x 5 umW; L/W 4.40; A_3 4.8 um; A_4 5.7 um; NB 31 um; BL_1 42 um; B_2 11 um; NB/BL_1 0.74; mandible 176 umL; A_1/M 1.48; seta 1 simple, setae 2, 3 trifid; maxilla, palpus 58 umL x 20 um mesal width; CS_1P 0.38 from base; A_1/P_1 4.5; ligula yellow, without dark markings, (Fig. 3), 137 umL, 74 umW, L/W 1.85; apices of 5 teeth concave; inner pair of teeth gently curved laterally; paraglossae unevenly bifid, 72 umL; mentum with 6 dorsomental teeth, inner corners not produced; prementohypopharyngeal complex present, pseudoradula present; pecten hypopharyngis with 18 pairs of teeth in a single row; lateral fringe present on abdomen; posterior prolegs with 2 small, stout and 14 slender claws (Fig. 4), several slender claws possess fine spines on the inner margins.

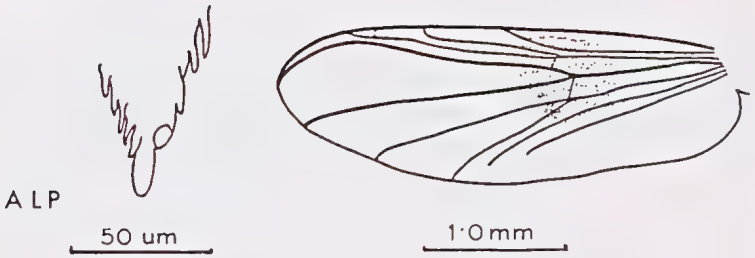


Figs. 1-5. *Apsectrotanypus pallipes* (Freeman). 1, antenna of larva; 2, detail of larval antennal segments; 3, claws; 4, ligula of larva; 5, thoracic horn of pupa. (A1-A4, antennal segments 1-4; IR, internal rod struts; L, ligula; LO, Lauterborn organs; PL, paraligula, RA, respiratory atrium, RO, ring organ; S, style; SlC, slender claws; SmC, small claws.)

Pupa: Thoracic horn (Fig. 5) 492 umL x 128 umW; plastron plate 71 umL x 86 umW; thoracic horn with internal struts; surface of organ with spines; thorax brown. Abdomen scar of AI, 169 umL; $D_{2,3}$ elongate on tubercles on A III-V; anal fins asymmetrical (Fig. 6) fringe on both margins, 903 umL, greatest width of single fin 418 um; L/W 2.16; apex of anal lobe smooth and pointed (Fig. 7); genital sac 0.13 length of anal lobes.

Adult female: Head yellow, postoculars multiseriate to middle of quadrate dorsal eye extension; antenna with 14 flagellomeres; last five 71, 49, 53, 82, 162 um; pedicel with at least 13 setae regularly distributed around circumference except the median region where it is bare; scape with 4 setae; palpal segments 2-5, 58, 131, 228, 359 um; thorax yellow; scutellum with 40-60 setae; postnotum with around 20 setae; wing (Fig. 8) 3.42 mm; m-cu 0.48 arculus to wing tip; costal extension 142 um; darker hairs over 4-m, m-cu, basal 0.4 of R_{4+5}, M, Cu, below apex of CU_2 and anal vein; squama with 40-50 setae; legs yellow, slightly darkened above knees; LR I 0.69; LR II 0.50; LR III 0.65 spur T; I 86 um, 20 lateral teeth each; comb TiIII with 10-14 lateral spines; claws pointed distally; abdomen yellow.





Figs. 6-8. *Apsectrotanypus pallipes* (Freeman). 6, anal fin of pupa; 7, detail of apex of pupal anal lobe; 8, wing of adult female. (AL, apical lobe; ALP, apical lobe point; F, fringe; IX, segment IX; X, segment X.)

Diagnosis

A. pallipes (female) appears to be most closely related to *Anatopynia masteri* (Skuse). It differs from other members of the tribe in: legs almost entirely yellow and the wings practically without dark markings or patches of dark macrotrichia except around the crossveins. However *A. pallipes* does have light brown macrotrichia sparsely distributed around the apical region of the wings.

The only other Australian larva of the genus *Apsectrotanypus* currently described is *A. maculosa* (Freeman) (Roback 1982b). *A. pallipes* differs from *A. maculosa* in that the antennal ratio is smaller (6.5 c.f. 9.0) and in the number and shape of the claws on each posterior proleg (*A. pallipes* has 14 simple and 2 small, stout claws, *A. maculosa* has 15 simple claws). The respiratory organ of *A. pallipes* pupae is shorter and has a more elongated shape than that of *A. maculosa*.

Discussion

This is the first record of *A. pallipes* in Victoria, although it has previously been recorded from Tasmania and New South Wales. The larval preference for cool, lotic streams may be the primary determinant in the distribution of this species.

The Otway Ranges are geographically isolated from the Great Dividing Range in Victoria, and although the forest was continuous in earlier times (see Rawlinson 1975) the two areas are now distinctly separated. The presence of *C. umbratorum* in the Otways is of interest as it extends the known range of the species to another region, however it is not known whether this latest record is of a newly introduced or relict population. The habitats are similar in both areas — slow moving streams in forest areas. It is suggested that for both *A. pallipes* and *C. umbratorum*, larval preferences may determine the species' range.

Acknowledgements

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